

## **Transformational Leadership and Task Cohesion in Sport: The Mediating Role of Inside Sacrifice**

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Transformational leadership and task cohesion in sport:  
The mediating role of inside sacrifice

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## Abstract

In this cross-sectional study, we examined a mediational model whereby transformational leadership is related to task cohesion via sacrifice. Participants were 381 American ( $M_{\text{age}} = 19.87$ ,  $SD = 1.41$ ) Division I university athletes (188 males, 193 females) who competed in a variety of sports. Participants completed measures of coach transformational leadership, personal and teammate inside sacrifice, and task cohesion. After conducting multilevel mediation analysis, we found that both personal and teammate inside sacrifice significantly mediated the relationships between transformational leadership behaviors and task cohesion. However, there were differential patterns of these relationships for male and female athletes. Interpretation of the results highlights that coaches should endeavor to display transformational leadership behaviors as they are related to personal and teammate inside sacrifices and task cohesion.

*Keywords:* coaching, group dynamics, teamwork

Burns (1978) describes a transformational leader as someone who “looks for potential motives in followers, seeks to satisfy higher level needs, and engages the full person of the follower” (p. 4). This contrasts with the traditional transactional approach to leadership which articulates leadership as a quid pro quo relationship between leader and follower (e.g., the exchange of rewards for desired behavior). Bass (1995) later described transformational leadership as a process that “raises follower’s awareness about issues of consequence, influences followers to transcend their own self-interest for the good of the group, and causes followers to work harder than they originally expected to do” (p. 469). However, little is known about how transformational leaders can influence followers to sacrifice their personal interests for the good of the group. Prior to discussing the transformational leadership research, it is important to outline how transformational leadership has been conceptualized.

Traditionally, researchers have adopted two approaches to conceptualizing transformational leadership: (a) a global model and (b) a differentiated approach. Researchers who adopt a global approach combine the transformational leadership behaviors into a single overarching construct. Conversely, researchers who adopt a differentiated approach conceptualize transformational leadership as a set of distinct behaviors. Furthermore, researchers who adopt a global representation suggest that differentiation between the transformational leadership behaviors is unnecessary because of the high inter-factor correlations between behaviors (e.g., Judge & Bono, 2000). In contrast, researchers who adopt a differentiated approach propose that each transformational leadership behavior should be investigated separately (Podsakoff, MacKenzie, Moorman, & Fetter, 1990) because transformational leadership behaviors have different relationships with outcome variables (e.g., Antonakis, Avolio, & Sivasubramaniam, 2003; Lowe, Kroeck, & Sivasubram, 1996). Thus, combining transformational leadership behaviors into one global construct would conceal these differential relationships. In practical terms, investigating transformational

leadership behaviors separately also has the advantage of allowing researchers to advise leaders on what specific behaviors are most effective in promoting desired outcomes. In this study, we investigated the separate effects of different transformational leader behaviors; consequently, a differentiated approach was adopted.

We included five transformational leadership behaviors outlined by Callow, Smith, Hardy, Arthur, and Hardy (2009). Specifically, individual consideration involves the leader recognizing individual differences and showing concern for follower's development. Fostering acceptance of group goals and promoting teamwork addresses behaviors by the leader which promote both teamwork/team spirit and working together to achieve team goals. High performance expectations involve the leader showing that they expect high standards from their team/group. Appropriate role model addresses the leader serving as a good role model for their followers. Lastly, inspirational motivation involves the leader inspiring others to succeed through their vision. By displaying such behaviors the transformational leader is said to promote positive outcomes in both followers and the group. Within sport, researchers have found that transformational leadership is associated with: performance (Charbonneau, Barling, & Kelloway, 2001), follower satisfaction (Rowold, 2006; Zachoratos, Barling, & Kelloway, 2000), athlete effort (Arthur, Woodman, Ong, Hardy, & Ntoumanis, 2011; Rowold, 2006), and task cohesion (Callow et al., 2009; Smith, Arthur, Hardy, Callow, & Williams, 2013).

Task cohesion involves team cooperation towards achieving performance goals within both practice and competition environments. As Carron, Colman, Wheeler, and Stevens (2002) found that cohesion was positively related to performance across numerous sports, it is important for researchers to investigate what creates a cohesive team. In two studies with Ultimate Frisbee teams, researchers have reported that the transformational leadership behaviors of individual consideration, fostering acceptance of group goals and high

performance expectations are positively related to task cohesion (Callow et al., 2009; Smith et al., 2013). Given these results, it is important to include individual consideration, fostering acceptance of group goals, and high performance expectations when investigating the transformational leadership to task cohesion relationship. Both appropriate role model and inspirational motivation were also included as these behaviors were likely to be important in the current context.

There are a number of reasons why these particular transformational leadership behaviors should be positively related to task cohesion. To begin with, a relationship between individual consideration and task cohesion can be explained by Yukelson's (1997) proposition that leaders who accommodate individual differences can blend the talents of individual members into a cohesive team. Fostering acceptance of group goals should also be positively correlated with task cohesion. Indeed, if team members accept team goals and are encouraged to work together, it is likely that task cohesion will increase as players strive towards achieving these common goals. There is also a plausible reason why high performance expectations should be positively associated with task cohesion. In outlining the Galatea effect, Eden and Ravid (1982) propose that expectations are transferred from leader to follower; thus, if leaders display high performance expectations in relation to task cohesion, higher levels of task cohesion are likely to be produced in followers. Beyond the transformational leadership behaviors examined in previous cohesion studies in sport, it is also theorized that the transformational leadership behaviors of appropriate role modelling and inspirational motivation are related to task cohesion. Appropriate role modelling is suggested to be positively related to task cohesion because transformational leaders model behaviors which contribute towards task cohesion, and their followers will look to emulate such behaviors (Shamir, House, & Arthur, 1993). Lastly, inspirational motivation should also be positively correlated with task cohesion. Inspirational motivation involves

124 articulating a collective purpose and encourages followers to adopt a shared vision; both of  
125 which should bring individuals together so that they feel part of the group and positively  
126 influence task cohesion (Hopton, Phelan, & Barling, 2014).

127 According to Prapavessis, Carron, and Spink's (1997) conceptual model of team  
128 building, leadership impacts task cohesion through various group processes including  
129 communication, team goals, and sacrifice. Using this model, Smith and colleagues (2013)  
130 found that communication did mediate the relationship between transformational leadership  
131 and task cohesion in sports teams. In the present study, we investigated if transformational  
132 leadership is related to task cohesion via athlete sacrifice. Within organizational psychology,  
133 leadership sacrifice is purported to enhance a leader's influence and has been positively  
134 associated with transformational leadership and task cohesion (Choi & Mai-Dalton, 1999). In  
135 sport, researchers have only examined follower sacrifice (Prapavessis & Carron, 1997).  
136 These researchers defined sacrifice as "group members voluntarily initiating an action or  
137 giving up prerogative or privilege for the sake of another person or persons" (Prapavessis &  
138 Carron, 1997, p. 231) and conceptualized sacrifice behaviors as involving social sacrifice  
139 (i.e., sacrifices athletes make in their social lives), outside sacrifice (i.e., sacrifices athletes  
140 make in their personal lives), and inside sacrifice (i.e., sacrifices athletes make in practice and  
141 competition). Additionally, they proposed that inside sacrifice involves both personal (e.g.,  
142 sacrifices I make) and teammate (e.g., sacrifices my teammates make) inside sacrifice.

143 Several researchers suggest that sacrifice is related to task cohesion. Zander (1982)  
144 suggested that "a participant who is asked to give up something of value for her group  
145 becomes, because of this sacrifice, more attracted to that body" (p. 7). Given that task  
146 cohesion involves an athlete's attraction to their team (Widmeyer, Brawley, & Carron, 1985),  
147 athletes making sacrifices for their team should lead to higher perceptions of task cohesion  
148 within that team. This idea is supported by research in cricket teams, with Prapavessis and

Carron (1997) finding that inside sacrifices were positively related to task cohesion. As both inside sacrifices and task cohesion have salience to the specific context of practicing and competing, we examined inside sacrifices only.

Unlike the relationship between sacrifice and task cohesion, researchers have not yet examined the relationship between transformational leadership and sacrifice. However, the idea that transformational leaders inspire followers to make sacrifices forms a central pillar of transformational leadership theory. For example, Bass' (1985) seminal work explicitly states that transformational leaders will "get us to transcend our own self-interest for the sake of the team, organization, or larger polity" (p. 20). Within organizational psychology, researchers have reported a positive relationship between transformational leadership and organizational citizenship behaviors (e.g., Podsakoff et al., 1990). This is the closest researchers have come to examining sacrifice, as organizational citizenship behaviors are similar to sacrifice behaviors because they both involve engaging in behaviors which go unrewarded but promote the functioning of the group. However, organizational citizenship behaviors are broader than sacrifice behaviors as Organ (1988) suggests they incorporate: helping, conscientiousness, sportsmanship, courtesy, and civic virtue.

In addition to transformational leadership theory and research on organizational citizenship behaviors, there are theoretical links between specific transformational leadership behaviors and athlete sacrifices. The theoretical links outlined below originate from Shamir and colleague's (1993) self-concept based theory of the motivational effects of charismatic leadership – a theory which overlaps considerably with transformational leadership. First, individual consideration should be positively associated with athlete sacrifices. A coach who treats each athlete as an individual and supports their personal development is likely to enhance the athlete's personal identification with the coach; which, in turn, will motivate the athlete to make sacrifices for the team. Second, fostering acceptance of group goals and



promoting teamwork ought to be positively correlated with follower sacrifices. By fostering acceptance of group goals and promoting teamwork, the coach is likely to increase team member's collective identity (i.e., identifying with team goals) and value internalization (i.e., internalizing the notion of teamwork) which will motivate followers to make sacrifices for the team. Third, high performance expectations should be positively related to athlete sacrifices. A leader who displays high performance expectations is likely to increase both the self and collective-efficacy of followers, which will motivate these followers to make sacrifices in order to meet such expectations. Appropriate role modelling ought to be positively associated with follower sacrifices; as a coach who is an appropriate role model will display sacrifice behaviors, which serve as a model for the sacrifices expected of followers. Finally, inspirational motivation should be positively correlated with athlete sacrifices; as followers who accept the collective vision of their leader, and form a collective identity, are likely to engage in collective-oriented behaviors such as sacrifices.

Within the present study, there was a possibility of differences between male and female athletes on the main study variables and more importantly, on the relationships between those variables. Proponents of the sociocultural theory of sex differences (e.g., Cross & Madson, 1997; Wood & Eagly, 2010) maintain that different socialization patterns result in gender differences for certain behaviors that relate to the present study's variables. For example, Maccoby (1990) suggests that gender differences may be socialized during childhood, with girl's interactions tending to be more prosocial and cooperative, and boy's interactions placing greater emphasis on social dominance. Intuitively, both prosocial behavior and cooperation could be linked to both sacrifice behavior and task cohesion. Researchers have also shown that athlete gender influences perceptions of coaches' behaviors (e.g., Hollembeak & Amorose, 2005) and levels of task cohesion within male and female sports teams (Thompson & Albinson, 1991; Widmeyer, Brawley, & Carron, 1985). Finally,

gender differences for organizational citizenship behaviors (which are similar to sacrifice behaviors) and group orientation have also been reported (Kashima et al., 1995; Van Dyne & Ang, 1998).

Of further relevance to the present study is Korabik and Ayman's (2007) integrative model of gender and leadership, which depicts the effect of gender on the relationships between leader behaviors and follower outcomes. Specifically, Korabik and Ayman (2007) propose that the interactions between leaders and followers are influenced by intrapsychic processes (e.g., gender role orientation in both parties), sociodemographic gender (e.g., expectations of role behaviors), and contextual cues (e.g., the gender make-up of the group). Supporting the integrative model of gender and leadership, Kacmar, Bachrach, Harris, and Zivnuska (2011) found that gender influenced the relationship between leadership behaviors and organizational citizenship behaviors (akin to sacrifice behaviors in the present study). Furthermore, Powell, Butterfield, and Bartol (2008) reported that gender influences the relationships between leadership behaviors and other outcomes such as employee effort and satisfaction.

Based on the aforementioned theory and research, it was possible that gender differences could exist for each of the study's variables and for the relationships between these variables. Given such differences, in particular those relating to sacrifice (i.e., a mechanism by which transformational leadership may exert its effect on task cohesion), conceptually we proposed that different mediational relationships would occur in the present study because of the concomitant socialization patterns that result in different behaviors (Wood & Eagly, 2010) and relationships between behaviors (Korabik & Ayman, 2007). Consequently, we decided that it was pertinent to conduct an exploratory examination of possible gender differences within the context of our hypotheses.

In summary, the purpose of the present study was to examine a mediational model whereby transformational leadership is related to task cohesion via inside sacrifice; a number of specific hypotheses were tested. Based on Prapavessis and colleagues (1997) conceptual framework, it was hypothesized that both personal and teammate inside sacrifice would mediate the relationships between the five transformational leaderships behaviors and task cohesion. In accordance with previous research in sport (e.g., Callow et al., 2009), we expected that all five transformational leadership behaviors would be positively related to task cohesion. Based on transformational leadership theory (Bass, 1995; Shamir et al., 1993) and research involving organizational citizenship behaviors (Podsakoff et al., 1990), it was predicted that the five transformational leadership behaviors would be positively associated with both personal and teammate inside sacrifice. In accordance with the research of Prapavessis and Carron (1997), we expected that both personal and teammate inside sacrifices would be positively related to task cohesion. Lastly, due to our exploratory examination of possible gender differences, we did not propose specific hypothesis for the gender analysis. Exploration of this mediation model should further our understanding of the complex relationship between transformational leadership behaviors and task cohesion. In practice, this should help us to advise coaches on how they can promote follower sacrifices and task cohesion in their teams.

## Method

### Participants

Participants comprised of 388 American Division I university athletes. Seven coaches had only one athlete complete the survey; therefore, these athletes' responses were removed. This gave a sample of 381 athletes ( $M_{\text{age}} = 19.9$ ,  $SD = 1.4$ ) that rated 38 different coaches. The sample included both female ( $n = 193$ ) and male ( $n = 188$ ) athletes from interactive sports (e.g., volleyball, water polo,  $n = 225$ ) and co-active sports (e.g., golf,

tennis,  $n = 156$ ). In total, 101 female athletes had a male coach and 92 female athletes had a female coach, whereas 181 male athletes had a male coach and 7 male athletes had a female coach. In all cases, the 38 head coaches (male = 18, female = 10) were full-time paid coaches in charge of teams containing both scholarship and non-scholarship athletes.

## Measures

**Transformational leadership.** The Differentiated Transformational Leadership Inventory for Sport (DTLI; Callow et al., 2009) was used to assess coaches' transformational leadership behaviors. The following transformational leadership behaviors were selected: individual consideration<sup>1</sup> (4 items; e.g., "my coach treats each team member as an individual"), fostering acceptance of group goals (3 items; e.g., "my coach gets the team to work together for the same goal"), high performance expectations (4 items; e.g., "my coach expects us to achieve high standards"), appropriate role model (4 items; e.g., "my coach sets a good example for team members to emulate"), and inspirational motivation<sup>1</sup> (4 items; e.g., "my coach develops, articulates and inspires others with his/her vision for the future"). Each item was scored on a scale ranging from 1 (*Not at all*) to 5 (*All the time*). Previous research has supported the validity and reliability of the DTLI (e.g., Arthur et al., 2011; Smith et al., 2013). Nonetheless, a confirmatory factor analysis (CFA) was conducted on the 5-factor scale using AMOS (Arbuckle, 2010). This 5-factor model indicated an adequate fit,  $\chi^2(142) = 403.02$ ,  $p < .01$ , RMSEA = 0.07, CFI = 0.94, TLI = 0.93. The Cronbach's alpha coefficients were as follows: individual consideration (.86), fostering acceptance of group goals (.82), high performance expectations (.80), appropriate role model (.89), and inspirational motivation (.84). These reliability scores were deemed acceptable based on Nunnally and Bernstein's (1994) criterion of .70 for the psychological domain.

**Inside sacrifice.** Players' perceptions of inside sacrifice were measured using the Group Sacrifice Scale (GSS; Prapavessis & Carron, 1997). After conducting an EFA,

these researchers found that the GSS displayed four components: inside sacrifice, outside sacrifice, personal social sacrifice, and teammate social sacrifice. However, as indicated earlier, we focused on inside sacrifice. As sacrifice was originally conceptualized by Prapavessis and Carron (1997) as involving a personal and a teammate dimension, we decided to separate inside sacrifice into personal inside sacrifice (8 items; e.g., “I am willing to carry out responsibilities I don’t like for the good of the team”) and teammate inside sacrifice (8 items; e.g., “my teammates are willing to put aside their own personal goals if they conflict with the team’s goal”). All items are rated on a scale ranging from 1 (*Strongly disagree*) to 9 (*Strongly agree*).

As the GSS has only been used in one published study, we conducted a CFA on the two inside sacrifice subscales. Both the personal inside sacrifice,  $\chi^2 (20) = 296.48, p < .01$ , RMSEA = 0.19, CFI = 0.80, TLI = 0.72, and teammate inside sacrifice,  $\chi^2 (20) = 438.5, p < .01$ , RMSEA = 0.24, CFI = 0.84, TLI = 0.78, scales indicated a poor fit. Based on theoretical reasons and modification indices for theta delta, three items were deleted. First, “I am willing to carry out responsibilities I am not competent at for the good of the team” was removed because it was thought that undertaking responsibilities one is not competent at might be considered counterintuitive by some athletes. Second, “I am willing to accept playing less when not performing to the best of my abilities for the good of the team” was removed. As sacrifice involves giving up something for the ‘good’ of the team, we felt that even if some players are not performing to their best, they may still believe they are better than their teammates, and therefore this item could be construed as being somewhat ambiguous. Finally, “I am willing not to engage in verbal conflict with my opponents for the good of the team” was removed as verbal conflict is, at times, part of competitive sport and can be used for the good of the team when competing. After deleting these three items in each subscale, a two-factor model of personal and teammate

inside sacrifice indicated an adequate fit,  $\chi^2 (29) = 67.90, p < .01$ , RMSEA = 0.06, CFI = 0.97, TLI = 0.98. The Cronbach's alpha coefficient was .79 for personal inside sacrifice and .90 for teammate inside sacrifice.

**Task cohesion.** Task cohesion was measured using the positively worded Group Environment Questionnaire (GEQ; Eys, Carron, Bray, & Brawley, 2007). Eys and colleagues (2007) have shown that this nine-item scale provides greater internal consistency than the original positively and negatively worded version. Example items include: "I like the style of play of this team" and "we all take responsibility for any loss or poor performance by our team." Each item is scored on a scale ranging from 1 (*Strongly disagree*) to 9 (*Strongly agree*). The psychometric properties of the GEQ have repeatedly been demonstrated; see Carron, Brawley, and Widmeyer (1998) for a review. In the present study, task cohesion displayed a Cronbach's alpha coefficient of .90.

## Procedures

Following institutional ethical approval, athletes were recruited by contacting the head coach of each respective team. After obtaining informed consent from all participants, the full survey was administered electronically. Lonsdale, Hodge, and Rose (2006) highlight the equivalence of online and paper-and-pencil surveys in sports research. All of the data were collected at mid-season, giving athletes sufficient time to form accurate perceptions of all study variables. To ensure consistency, each team completed the surveys three days prior to competing and each athlete completed the survey anonymously. Additionally, the surveys were counterbalanced with the first half of the sample completing the survey in one order (i.e., transformational leadership, inside sacrifices and task cohesion) and the second half completing the survey in the opposite order.

## Data Analyses

Given that the present dataset consisted of two hierarchical levels, the athlete (Level 1) and the coach (Level 2), the nested nature of the data needed to be addressed. To statistically analyze whether it was appropriate to use a multilevel framework, intraclass correlation coefficients were calculated. Intraclass correlation coefficients define the proportion of between-group variance to total variance. In the present sample, the intraclass correlation coefficients were as follows: individual consideration (.22), fostering acceptance of group goals (.20), high performance expectations (.35), appropriate role model (.27), inspirational motivation (.18), personal inside sacrifice (.05), teammate inside sacrifice (.18), and task cohesion (.28). According to Julian (2001) intraclass correlation coefficients greater than .05 indicate that a meaningful proportion of variance is due to group membership and multilevel analysis is appropriate. Therefore, a multilevel framework was adopted for the present study.

We employed MLwiN to conduct multilevel analyzes (Rasbash, Browne, Healy, Cameron, & Charlton, 2013). When conducting multilevel analysis, one must first decide whether to include fixed or random effects at Level 2. We used the likelihood ratio test (Rasbach, Steele, Browne, & Goldstein, 2012) to assess whether Level 2 effects should be fixed or random. This test involves comparing a model where the Level 2 variances are constrained to 0 (fixed effect model) and a model where the Level 2 variances are free to vary (random effect model). In practical terms, this meant subtracting the *-2loglikelihood* of the fixed effect model from the *-2loglikelihood* of the random effect model and then comparing this figure to a chi square distribution on one degree of freedom (when testing variance in intercepts) and two degrees of freedom (when testing the variance in slopes). After reviewing the results of the loglikelihood ratio tests, we found that in all cases a random intercept fixed slope model best represented the data.

The data were group mean centered for all analyses. This decision was taken as

Enders and Tofighi (2007) suggest that group mean centering is optimal when Level 1 (i.e., person level) relationships are of primary interest. However, centering decisions in multilevel analysis are a complex issue, a discussion of which is beyond the scope of the present study. For a comprehensive discussion of centering in a sports context, please refer to Myers, Brincks, and Beauchamp (2010).

Testing for mediation in multilevel analysis is also a complex issue. In order to test for mediation, we used the Monte Carlo Method for Assessing Mediation (MCMAM; MacKinnon, Lockwood, & Williams, 2004; Bauer, Preacher, & Gil, 2006). This required the use of Selig and Preacher's (2008) MCMAM calculator to estimate confidence intervals for the indirect effect. [Similar to previous studies \(e.g., Smith et al., 2013\)](#), the confidence interval (CI) was set at 95% and 20,000 repetitions were specified. There is evidence of mediation when zero is not included within the lower and upper bound CI.

In addition to the previously outlined analysis procedures, regression coefficients for each gender were directly compared by conducting a joint chi-square test in MLwiN. This involved entering [data for](#) both males and females into the regression equation and comparing the joint chi-square test statistic against a chi-square distribution with 1 degree of freedom. A detailed description of this procedure is available from the Bristol Centre for Multilevel Modelling (2011).

## Results

### Descriptive Statistics

Descriptive statistics, reliability estimates and intercorrelations are displayed in Table 1. The correlations [indicated](#) that both gender and sport type was significantly correlated with most of the other study variables. Independent samples *t*-tests [showed](#) that male athletes displayed higher mean scores than female athletes for individual consideration,  $t(379) = 5.05, p < .001$ , fostering acceptance of group goals,  $t(379) = 4.57$ ,



$p < .001$ , appropriate role model,  $t(379) = 4.93$ ,  $p < .001$ , inspirational motivation,  $t(379) = 4.09$ ,  $p < .001$ , teammate inside sacrifice,  $t(379) = 8.12$ ,  $p < .01$ , and task cohesion,  $t(379) = 5.76$ ,  $p < .001$ . Results also indicated that interactive sports displayed higher scores than co-active sports for high performance expectations,  $t(379) = 4.17$ ,  $p < .001$ , personal inside sacrifice,  $t(379) = 4.97$ ,  $p < .001$ , and teammate inside sacrifice,  $t(379) = 3.16$ ,  $p < .01$ . Consequently, prior to conducting the main analyses the data was standardized within gender and sport type.

### Main Analyses

For the overall sample, the direct effects for transformational leadership behaviors on task cohesion were all significant: individual consideration,  $\beta_1 = .47$ ,  $SE = .04$ ,  $p < .01$ ; fostering acceptance of group goals,  $\beta_1 = .53$ ,  $SE = .04$ ,  $p < .01$ ; high performance expectations,  $\beta_1 = .38$ ,  $SE = .06$ ,  $p < .01$ ; appropriate role model,  $\beta_1 = .46$ ,  $SE = .05$ ,  $p < .01$ ; and inspirational motivation,  $\beta_1 = .39$ ,  $SE = .05$ ,  $p < .01$ .

**Hypothesis 1.** The relationship between individual consideration and task cohesion will be mediated by inside sacrifice.

With personal inside sacrifice as the mediator, the  $a$  path (individual consideration to personal inside sacrifice) and the  $b$  path (personal inside sacrifice to task cohesion) were both significant and positive (see Table 2). The 95% CI for the indirect effect excluded zero indicating that personal inside sacrifice mediates the relationship between individual consideration and task cohesion. With teammate inside sacrifice as the mediator, the  $a$  path (individual consideration to teammate inside sacrifice) and the  $b$  path (teammate inside sacrifice to task cohesion) were also both significant and positive. In addition, the 95% CI for the indirect effect did not include zero indicating that teammate inside sacrifice also mediates the individual consideration to task cohesion relationship.

**Hypothesis 2.** The relationship between fostering acceptance of group goals and

task cohesion will be mediated by inside sacrifice.

With personal inside sacrifice as the mediator, the *a* path (fostering acceptance of group goals to personal inside sacrifice) and the *b* path (personal inside sacrifice to task cohesion) were both significant and positive (see Table 2). The 95% CI for the indirect effect excluded zero indicating that personal inside sacrifice mediates the relationship between fostering acceptance of group goals and task cohesion. With teammate inside sacrifice as the mediator, the *a* path (fostering acceptance of group goals to teammate inside sacrifice) and the *b* path (teammate inside sacrifice to task cohesion) were both significant and positive. The 95% CI for the indirect effect did not include zero indicating that teammate inside sacrifice also mediates the fostering acceptance of group goals to task cohesion relationship.

**Hypothesis 3.** The relationship between high performance expectations and task cohesion will be mediated by inside sacrifice.

With personal inside sacrifice as the mediator, the *a* path (high performance expectations to personal inside sacrifice) and the *b* path (personal inside sacrifice to task cohesion) were both significant and positive (see Table 2). The 95% CI for the indirect effect excluded zero indicating that personal inside sacrifice mediates the relationship between high performance expectations and task cohesion. With teammate inside sacrifice as the mediator, the *a* path (high performance expectations to teammate inside sacrifice) and the *b* path (teammate inside sacrifice to task cohesion) were both significant and positive. The 95% CI for the indirect effect did not include zero indicating that teammate inside sacrifice also mediates the high performance expectations to task cohesion relationship.

**Hypothesis 4.** The relationship between appropriate role model and task cohesion will be mediated by inside sacrifice.

With personal inside sacrifice as the mediator, the  $a$  path (appropriate role model to personal inside sacrifice) and the  $b$  path (personal inside sacrifice to task cohesion) were both significant and positive (see Table 2). The 95% CI for the indirect effect excluded zero indicating that personal inside sacrifice mediates the relationship between appropriate role model and task cohesion. With teammate inside sacrifice as the mediator, the  $a$  path (appropriate role model to teammate inside sacrifice) and the  $b$  path (teammate inside sacrifice to task cohesion) were both significant and positive. The 95% CI for the indirect effect did not include zero indicating that teammate inside sacrifice also mediates the appropriate role model to task cohesion relationship.

**Hypothesis 5.** The relationship between inspirational motivation and task cohesion will be mediated by inside sacrifice.

With personal inside sacrifice as the mediator, while the  $a$  path (inspirational motivation to personal inside sacrifice) was non-significant, the  $b$  path (personal inside sacrifice to task cohesion) was significant and positive (see Table 2). The 95% CI for the indirect effect included zero indicating that personal inside sacrifice does not mediate the relationship between inspirational motivation and task cohesion. In contrast, with teammate inside sacrifice as the mediator, both the  $a$  path (inspirational motivation to teammate inside sacrifice) and the  $b$  path (teammate inside sacrifice to task cohesion) were significant and positive. Moreover, the 95% CI for the indirect effect did not include zero indicating that teammate inside sacrifice mediates the inspirational motivation to task cohesion relationship.

#### **Exploratory Gender Analyses**

In the present study, male athletes rated their coaches higher on individual consideration, fostering acceptance of group goals, appropriate role model, and inspirational motivation as compared to female athletes. Males also rated their teams

higher on task cohesion than females. Given such initial gender differences in our results, gender differences in previous research and a priori reasoning, we decided to explore the effect of gender on our study hypotheses.

For both genders the direct effects for leadership behaviors on task cohesion were all significant: individual consideration, males  $\beta_1 = .51$ ,  $SE = .07$ ,  $p < .01$ , females  $\beta_1 = .42$ ,  $SE = .06$ ,  $p < .01$ ; fostering acceptance of group goals, males  $\beta_1 = .54$ ,  $SE = .07$ ,  $p < .01$ , females  $\beta_1 = .51$ ,  $SE = .06$ ,  $p < .01$ ; high performance expectations, males  $\beta_1 = .50$ ,  $SE = .08$ ,  $p < .01$ , females  $\beta_1 = .29$ ,  $SE = .08$ ,  $p < .01$ ; appropriate role model, males  $\beta_1 = .44$ ,  $SE = .07$ ,  $p < .01$ , females  $\beta_1 = .46$ ,  $SE = .07$ ,  $p < .01$ ; and inspirational motivation, males  $\beta_1 = .46$ ,  $SE = .07$ ,  $p < .01$ , females  $\beta_1 = .33$ ,  $SE = .07$ ,  $p < .01$ . Comparison of the regression coefficients indicated no gender differences for the relationship between transformational leadership and task cohesion.

In contrast to the direct effects, there were some differences in the nature of the mediation for male and female athletes (see Table 3). For males, personal inside sacrifice consistently mediated the relationships between the transformational leadership behaviors and task cohesion (the only exception was inspirational motivation). For females, personal inside sacrifice only mediated the relationship between fostering acceptance of group goals and task cohesion. The results were markedly different for teammate inside sacrifice. For males, teammate inside sacrifice only mediated the relationships between individual consideration and high performance expectations and task cohesion. For females, teammate inside sacrifice mediated the relationships between all five transformational leadership behaviors and task cohesion. However, despite this distinct differential pattern of relationships, there were no gender differences when the  $a$  and  $b$  paths for males and females were compared directly. In other words, for some paths the magnitude of the regression coefficients was significantly greater than zero but when the

strength of these coefficients was compared across males and females, no difference emerged.

### Discussion

The purpose of this study was to examine a mediational model whereby transformational leadership is related to task cohesion via sacrifice. Through our findings, we provide support for the conceptual model of team building (Prapavessis et al., 1997) and transformational leadership theory (Bass, 1995). Specifically, we found that inside sacrifices mediated the relationships between the transformational leadership behaviors examined and task cohesion. Interestingly, we found some initial evidence that the nature of the mediation was different for males and females.

The primary aim of the current research was to test the conceptual model of team building (Prapavessis et al., 1997). We found support for one of the main predictions of this model; namely, that the leadership to cohesion relationship will be mediated by sacrifice. More specifically, we demonstrated that inside sacrifices mediated the relationships between individual consideration, fostering acceptance of group goals, high performance expectations, appropriate role model, inspirational motivation and task cohesion. The only exception was that personal inside sacrifice did not mediate the relationship between inspirational motivation and task cohesion. Taken together, the results presented here, along with Smith and colleagues (2013) findings, provide support for one of the major contentions of the conceptual model of team building (Prapavessis et al., 1997); namely, that of mediation. Indeed, both inside sacrifices and communication (Smith et al., 2013) have now been found to mediate the relationship between transformational leadership and task cohesion in sports teams. However, there are several other potential mediators that would be worth considering. For example, team goals and cooperation were also highlighted in Prapavessis and colleagues (1997) model.

In relation to transformational leadership theory, we found support for one of the central tenets of the theory; that transformational leaders will influence followers to transcend their own self-interest for the good of the group. Similarly, within organizational psychology, Podsakoff and colleagues (1990) found a positive relationship between transformational leadership and organizational citizenship behaviors. In our particular study, we found that all five transformational leadership behaviors were related to both personal and teammate inside sacrifice (with the exception of inspirational motivation to personal inside sacrifice). This is an important step for the transformational leadership literature in general and for transformational leadership research in sport. Specifically, these findings indicate the important role that coaches play in influencing their athletes to make sacrifices for the team. Indeed, coaches should display individual consideration, high performance expectations, fostering acceptance of group goals, and appropriate role modelling as these behaviors are related to athlete sacrifices. For example, coaches could help individual athletes to develop their strengths and work on their weaknesses (e.g., through performance profiling), set realistic and ambitious goals for the team (e.g., to score two goals per game), consistently highlight the importance of group goals (e.g., by discussing team goals before and during practice sessions), and role model the sacrifice behaviors they expect from team members (e.g., staying behind after scheduled practice to work with individual players). Furthermore, interventions designed to encourage these transformational leadership behaviors (e.g., teaching coaches how they might increase these behaviors within practice sessions) should have an effect on athlete sacrifices.

Another key finding of the present study was that personal and teammate inside sacrifices were related to task cohesion. Similarly, Prapavessis and Carron (1997) found that inside sacrifices were related to task cohesion in male cricket teams. This result also supports Zander's (1982) contention that making a sacrifice for the group causes a person to become

more attracted to that group. In practical terms, we suggest that raising awareness of the sacrifices made by individual athletes and the team as a whole may be a viable method of increasing task cohesion. For example, a coach could highlight that team members have played with minor injuries, carried out responsibilities they did not like (e.g., playing out of position) and put aside their personal goals for the good of the team. Additionally, a coach could require players to make visible sacrifices for the benefit of the team (e.g., organizing the equipment before and after practice), or a team building intervention could encourage athletes to commit (either verbally or in writing) to making sacrifices for the benefit of the team. At this stage, it is important to acknowledge that some sacrifices may be of detriment to the individual but benefit the team (e.g., playing whilst injured). In this case, a responsible coach would always put the health of each individual athlete ahead of the team. Perhaps future research could investigate other potential negative consequences of transformational leadership (e.g., burnout).

One of the interesting but preliminary findings that emerged from this study were those involving athlete gender. For male athletes, personal sacrifices were a more consistent mediator of the transformational leadership to task cohesion relationship as compared to teammate sacrifices. In contrast, for female athletes the perception of teammate sacrifices played a greater role in the mediation as compared to personal sacrifices. This provides initial support for Korabik and Ayman's (2007) integrative model of gender and leadership, whereby gender affects the relationship between leader behaviors and follower outcomes. According to these researchers, leader behaviors and follower outcomes are influenced by intrapsychic processes (e.g., gender role orientation in both parties), sociodemographic gender (e.g., expectations of role behaviors), and contextual cues (e.g., the gender make-up of the group). It also seems possible that a greater group orientation amongst females (Kashima et al., 1995) could help explain this finding. In this regard, it seems possible that females are

more interested in what the group is sacrificing, as opposed to their own personal sacrifices. However, because group orientation was not measured in this study, further research is needed to investigate such a claim.

When testing for mediation, we also noted that different transformational leadership behaviors had different relationships with the sacrifices made by male and female athletes. However, it is important to note that whilst the relationships were different (i.e., some of the coefficients from males' and females' data were significantly different from zero while others were not), there were no differences when we directly compared male and female regression coefficients (i.e., for all paths, coefficients for males and females were not different from each other). Within sport, this is the first study to offer preliminary evidence that gender may play a part in the relationships between transformational leadership behaviors and certain follower outcomes. As this is the first investigation to present such data, further research is needed to clarify these initial findings. However, when considering the current findings and given that not all leadership behaviors were related to follower sacrifices, some support for a differentiated view of transformational leadership (Podsakoff et al., 1990) is provided. By using this differentiated approach, practitioners can target specific leadership behaviors in the applied setting (cf. Antonakis et al., 2003) and researchers can examine the differential effects of various leadership behaviors (Podsakoff et al., 1990). Based on our results, we suggest that coaches should be aware that different transformational leadership behaviors exist and can be more or less effective in inducing sacrifices made by male and female athletes. For instance, fostering acceptance of group goals was the only behavior related to personal inside sacrifice in female athletes; whereas, individual consideration, high performance expectations, appropriate role model, and fostering acceptance of group goals were related to personal inside sacrifices in male athletes. Thus, a coach of a female team may focus on fostering acceptance of group goals when trying to encourage individual



athletes to make sacrifices; whereas, a coach of a male team might emphasize individual consideration, high performance expectations, appropriate role model, and fostering acceptance of group goals. Again, it is possible that fostering acceptance of group goals (i.e., a group oriented behavior) is particularly important for females due to a greater group orientation (Kashima et al., 1995).

Another gender finding of note was that female athletes rated their coaches lower on all five transformational leadership behaviors when compared to male athletes. This differed from research in business, with Bass and colleagues (1996) showing that females rated their leaders higher on transformational leadership than males. With regard to task cohesion, we found that female athletes rated their teams lower on task cohesion than their male counterparts. This contradicts Widmeyer and colleagues (1985) finding that female teams were higher than male teams on task cohesion but confirms Thompson and Albinson's (1991) finding that male teams are higher on task cohesion. A possible explanation for the present findings is that, in a traditionally male dominated arena such as sport, higher quality coaches gravitate towards male teams. Thus, male athletes rate their coaches higher on transformational leadership and their team higher on task cohesion. Taken as a whole, the above findings indicate the possibility of gender differences in relation to transformational leadership, inside sacrifices and task cohesion in sport. However, given the exploratory nature of the findings and the smaller sample sizes for each gender, we would encourage future research to further consider the possibility and empirically test possible gender differences.

As with many studies, the present investigation had a number of limitations which need to be highlighted. First, with any self-report data there is concern with social desirability and the truthfulness of responses. However, we hoped that online data collection, which is associated with increased privacy (Tourangeau, 2004), would have reduced the

effect of social desirability and ensured truthful responses in our study. Second, as all data was collected at one time-point, common method bias could be a cause for concern. However, the use of different response formats for the independent, mediator and dependent variables should have reduced possible common method bias (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003). Future studies could reduce possible common method bias further by obtaining the independent and dependent variables from different sources, measuring independent and dependent variables in different contexts, or by introducing a time lag between the measurement of the independent and dependent variables (Podsakoff et al., 2003). Alternatively, future research could use a marker variable (a variable unconnected to the variables under study) to statistically control for common method bias (Podsakoff et al., 2003). Third, the sample used in the present study (i.e., university athletes) was relatively homogenous with regard to performance level. Given that performance level has been shown to moderate the relationship between transformational leadership behaviors and task cohesion (Callow et al., 2009), this may limit the generalizability of the present findings. A final limitation is the correlational nature of this study, which means that causality cannot be established between variables. Future prospective longitudinal or experimental studies should investigate the causal relationships between transformational leadership, inside sacrifices and task cohesion. In doing so, relevant data concerning alternative sequential steps (e.g., transformational leadership—cohesion—sacrifice) would be generated.

In summary, [through this study we have extended](#) our understanding of the positive consequences of transformational leadership behaviors in sport. Our findings [indicated](#) that individual consideration, fostering acceptance of group goals, high performance expectations, appropriate role model, and inspirational motivation are related to task cohesion through both personal and teammate inside sacrifices. This provides us with some understanding of how a transformational leader can influence follower sacrifices and team cohesion in sport.

Furthermore, this is the first study to show that different transformational leadership behaviors may have different relationships with the sacrifices made by male and female athletes, offering support for a differentiated view of transformational leadership. A practical application of the current results suggests that interventions designed to develop specific leadership behaviors, as well as promote sacrifice behaviors in athletes, should enhance the task cohesion of sports teams.

## References

- Antonakis, J., Avolio, B. J., & Sivasubramaniam, N. (2003). Context and leadership: An examination of the nine-factor, full-range leadership theory using the Multifactor Leadership Questionnaire. *Leadership Quarterly*, 11, 258–265.
- Arbuckle, J. L. (2010). Amos (Version 19.0) [Computer Program]. Chicago, IL: SPSS.
- Arthur, C. A., Woodman, T., Ong, C. W., Hardy, L., & Ntoumanis, N. (2011). The role of athlete narcissism in moderating the relationship between coaches' transformational leader behaviors and athlete motivation. *Journal of Sport & Exercise Psychology*, 33, 3–19. PMID:21451168
- Bass, B. M. (1985). *Leadership and performance beyond expectations*. New York, NY: Free Press.
- Bass, B. M. (1995). Theory of transformational leadership redux. *Leadership Quarterly*, 6, 463–478. doi:10.1016/1048-9843(95)90021-7
- Bass, B. M., & Avolio, B. J. (2005). *MLQ: Multifactor Leadership Questionnaire* (2nd ed.). Redwood City, CA: Mind Garden.
- Bauer, D. J., Preacher, K. J., & Gil, K. M. (2006). Conceptualizing and testing random indirect effects and moderated mediation in multilevel models: New procedures and recommendations. *Psychological Methods*, 11, 142–163. doi:10.1037/1082-989X.11.2.142
- Burns, J. M. (1978). *Leadership*. New York, NY: Harper & Row.
- Bristol Centre for Multilevel Modelling. (2011). How do I test whether two coefficients are equal? Retrieved from <http://www.bristol.ac.uk/cmm/learning/multilevel-models/samples.html>
- Callow, N., Smith, M., Hardy, L., Arthur, C., & Hardy, J. (2009). Measurement of transformational leadership and its relationship with team cohesion and

- 673 performance level. *Journal of Applied Sport Psychology*, 33, 3–19.  
674 doi:10.1080/10413200903204754
- 675 Carron, A. V., Brawley, L. R., & Widmeyer, W. N. (1998). The measurement of  
676 cohesiveness in sports groups. In J. L. Duda (Ed.), *Advances in sport and exercise*  
677 *psychology measurement* (pp. 213–226). Morgantown, WV: Fitness Information  
678 Technology.
- 679 Carron, A. V., Colman, M. M., Wheeler, J., & Stevens, D. (2002). Cohesion and  
680 performance in sport: A meta-analysis. *Journal of Sport & Exercise*  
681 *Psychology*, 24, 168–188.
- 682 Charbonneau, D., Barling, J., & Kelloway, K. E. (2001). Transformational leadership and  
683 sports performance: The mediating role of intrinsic motivation. *Journal of Applied*  
684 *Social Psychology*, 31, 1521–1534. doi:10.1111/j.1559-1816.2001.tb02686.x
- 685 Choi, M., Mai-Dalton, R. R. (1999). On the leadership function of self-sacrifice.  
686 *Leadership Quarterly*, 9(4), 475–501. doi:10.1016/S1048-9843(98)90012-1
- 687 Cross, S. E., & Madson, L. (1997). Models of the self: Self-construals and gender.  
688 *Psychological Bulletin*, 122, 5–37. doi:10.1037/0033-2909.122.1.5
- 689 Enders, C. K., & Tofighi, D. (2007). Centering predictor variables in cross-sectional  
690 multilevel models: A new look at an old issue. *Psychological Methods*, 12,  
691 121–138. doi:10.1037/1082-989X.12.2.121
- 692 Eden, D., & Ravid, G. (1982). Pygmalion versus self-expectancy: Effects of  
693 instructor and self-expectancy on trainee performance. *Organizational*  
694 *Behavior and Human Performance*, 30, 351–364. doi:10.1016/0030-  
695 5073(82)90225-2
- 696 Eys, M. A., Carron, A. V., Bray, S. R., & Brawley, L. R. (2007). Item wording and  
697 internal consistency of a measure of cohesion: The group environment

- questionnaire. *Journal of Sport & Exercise Psychology*, 29, 395–402.  
PMid:17876974
- Hollembeak, J., & Amorose, A. (2005). Perceived coaching behaviors and college athletes' intrinsic motivation: A test of self-determination theory. *Journal of Applied Sport Psychology*, 17, 20–36. doi:10.1080/10413200590907540
- Hopton, C., Phelan, J., & Barling, J. (2014). Transformational leadership in sport. In M. R. Beauchamp & M. A. Eys (Eds.), *Group dynamics in exercise and sport psychology* (2nd ed., pp. 55–72). New York, NY: Routledge.
- Judge, T. A., & Bono, J. E. (2000). Five-factor model of personality and transformational leadership. *Journal of Applied Psychology*, 85(5), 751–765. doi:10.1037/0021-9010.85.5.751
- Julian, M. W. (2001). The consequences of ignoring multilevel data structures in nonhierarchical covariance modeling. *Structural Equation Modeling*, 8, 325–352. doi:10.1207/S15328007SEM0803\_1
- Kacmar, K. M., Bachrach, D. G., Harris, K. J., & Zivnuska, S. (2011). Fostering good citizenship through ethical leadership: Exploring the moderating role of gender and organizational politics. *Journal of Applied Psychology*, 96(3), 633–642. doi:10.1037/a0021872
- Kashima, Y., Yamaguchi, S., Kim, U., Choi, S. C., Gelfand, M. J., & Yuki, M. (1995). Culture, gender, and self: A perspective from individualism-collectivism research. *Journal of Personality and Social Psychology*, 69, 925–937. doi:10.1037/0022-3514.69.5.925
- Korabik, K., & Ayman, R. (2007). Gender and leadership in the corporate world: A multiperspective model. In J. L. Chin, B. Lott, J. K. Rice, & J. Sanchez-Hucles (Eds.), *Women and leadership: Transforming visions and diverse voices* (pp. 106–

- 723       124). Malden, MA: Blackwell. doi:10.1002/9780470692332.ch5
- 724   Lonsdale, C., Hodge, K., & Rose, E. A. (2006). Pixels vs. paper: Comparing online and  
725       traditional survey methods in sport psychology. *Journal of Sport & Exercise*  
726       *Psychology*, 28, 100–108.
- 727   Lowe, K. B., Kroeck, K. G., & Sivasubramaniam, N. (1996). Effectiveness correlates of  
728       transformational and transactional leadership: A meta-analytic review of the MLQ  
729       literature. *The Leadership Quarterly*, 7(3), 385–425. doi:10.1016/S1048-  
730       9843(96)90027-2
- 731   Maccoby, E. E. (1990). Gender and relationships: A developmental account. *American*  
732       *Psychologist*, 45, 513–520. doi:10.1037/0003-066X.45.4.513
- 733   MacKinnon, D. P., Lockwood, C. M., & Williams, J. (2004). Confidence limits for the  
734       indirect effect: Distribution of the product and resampling methods. *Multivariate*  
735       *Behavioral Research*, 39, 99–128. doi:10.1207/s15327906mbr3901\_4
- 736   Myers, N. D., Brincks, & Beauchamp, M. R. (2010). A tutorial on centering in cross-  
737       sectional two-level models. *Measurement in Physical Education and Exercise*  
738       *Science*, 14, 275–294. doi:10.1080/1091367X.2010.520247
- 739   Nunnally, J. C., & Bernstein, I. H. (1994). *Psychometric theory*. New York, NY:  
740       McGraw-Hill.
- 741   Organ, D. W. (1988). *Organizational citizenship behavior: The good soldier syndrome*.  
742       Lexington, MA: Lexington Books.
- 743   Podsakoff, P. M., MacKenzie, S. B., Lee, J. Y., & Podsakoff, N. P. (2003). Common  
744       method biases in behavioral research: A critical review of the literature and  
745       recommended remedies. *Journal of Applied Psychology*, 88, 879–903.  
746       doi:10.1037/0021-9010.88.5.879
- 747   Podsakoff, P. M., MacKenzie, S. B., Moorman, R. H., & Fetter, R. (1990).

- 748 Transformational leadership behaviors and their effects on followers' trust in  
749 leader, satisfaction and organizational citizenship behaviors. *Leadership*  
750 *Quarterly*, 1, 107–142. doi:10.1016/1048-9843(90)90009-7
- 751 Powell, G. N., Butterfield, D. A., & Bartol, K. M. (2008). Leader evaluations: A new  
752 female advantage? *Gender in Management: An International Journal*, 23(3), 156-  
753 174. doi:10.1108/17542410810866926
- 754 Prapavessis, H., & Carron, A. V. (1997). Sacrifice, cohesion, and conformity to norms in  
755 sports teams. *Group Dynamics: Theory, Research and Practice*, 1(3), 231–240.  
756 doi:10.1037/1089-2699.1.3.231
- 757 Prapavessis, H., Carron, A. V., & Spink, K. (1997). Team building in sport. *International*  
758 *Journal of Sport Psychology*, 27, 269–285.
- 759 Rasbash, J., Browne, W. J., Healy, M., Cameron, B., & Charlton, C. (2013). MLwiN  
760 (Version 2.28) [Computer software]. University of Bristol, UK: Centre for Multilevel  
761 Modelling.
- 762 Rasbash, J., Steele, F., Browne, W., & Goldstein, H. (2012). A user's guide to MLwiN.  
763 University of Bristol, UK: Centre for Multilevel Modelling. Retrieved from  
764 <http://www.bristol.ac.uk/cmm/software/mlwin/download/2-26/manual-web.pdf>
- 765 Rowold, J. (2006). Transformational and transactional leadership in martial arts. *Journal of*  
766 *Applied Sport Psychology*, 18, 312–325. doi:10.1080/10413200600944082
- 767 Selig, J. P., & Preacher, K. J. (2008). Monte Carlo method for assessing mediation:  
768 An interactive tool for creating confidence intervals for indirect effects [Computer  
769 software]. Retrieved from <http://www.quantpsy.org>
- 770 Shamir, B., House, R. T., & Arthur, M. B. (1993). The motivational effects of charismatic  
771 leadership: A self-concept based theory. *Organization Science*, 4(4), 577–594.  
772 doi:10.1287/orsc.4.4.577



- 773 Smith, M. J., Arthur, C. A., Hardy, J., Callow, N., & Williams, D. (2013).  
774 Transformational leadership and task cohesion in sport: The mediating role of  
775 intrateam communication. *Psychology of Sport and Exercise*, 14, 249–257.  
776 doi:10.1016/j.psychsport.2012.10.002
- 777 Thompson, S. A., & Albinson, J. (1991). *An investigation of factors affecting the*  
778 *development of cohesion among intercollegiate rowers*. Paper presented at the  
779 Canadian Psychomotor Learning and Sport Psychology conference, London,  
780 Ontario.
- 781 Tourangeau, R. (2004). Survey research and societal change. *Annual Review of*  
782 *Psychology*, 55, 775–801. doi:10.1146/annurev.psych.55.090902.142040
- 783 Van Dyne, L., & Ang, S. (1998). Organizational citizenship behavior of contingent  
784 workers in Singapore. *Academy of Management Journal*, 41(6), 692–703.  
785 doi:10.2307/256965
- 786 Widmeyer, W. N., Brawley, L. R., & Carron, A. V. (1985). *The measurement of cohesion*  
787 *in sport teams: The group environment questionnaire*. London, ON: Sports  
788 Dynamics. PMid:4072453
- 789 Wood, W., & Eagly, A. H. (2010). Gender. In S. T. Fiske, D. T. Gilbert, & G. Lindzey  
790 (Eds.), *Handbook of social psychology* (5th ed., pp. 629–667). Hoboken, NJ:  
791 Wiley.
- 792 Zacharatos, A., Barling, J., & Kelloway, E. K. (2000). Development and effects of  
793 transformational leadership in adolescents. *Leadership Quarterly*, 11, 211–226.  
794 doi:10.1016/S1048-9843(00)00041-2
- 795 Zander, A. (1985). *The purposes of groups and organizations*. San Francisco, CA:  
796 Jossey-Bass.

Table 1

*Summary of means, standard deviations, intercorrelations and alpha coefficients*

	Mean	SD	1	2	3	4	5	6	7	8	9	10
1. Gender	-	-	-									
2. Sport type	-	-	-.14**	-								
3. Individual consideration	3.77	.90	-.25**	.13**	(.86)							
4. Fostering acceptance of group goals	3.94	.87	-.23**	-.10	.62**	(.82)						
5. High performance expectations	4.35	.73	-.04	-.22**	.31**	.58**	(.80)					
6. Appropriate role model	3.56	1.00	-.25**	.03	.70**	.75**	.53**	(.89)				
7. Inspirational motivation	4.11	.76	-.21**	.01	.70**	.69**	.38**	.69**	(.84)			
8. Personal inside sacrifice <sup>a</sup>	7.13	1.35	-.07	-.25**	.15**	.27**	.25**	.22**	.13*	(.79)		
9. Teammate inside sacrifice <sup>b</sup>	6.42	1.60	-.15**	-.16**	.26**	.29**	.29**	.31**	.23**	.63**	(.90)	
10. Task cohesion	6.74	1.53	-.28**	.03	.56**	.41**	.41**	.57**	.48**	.32**	.59**	(.90)

*Note.* Alpha coefficients are displayed in parentheses. <sup>a</sup> revised 5-item scale. <sup>b</sup> revised 5-item scale.

\* $p < .05$ , \*\* $p < .01$ .

Table 2  
*Multilevel mediation analyses for all study hypotheses*

	<i>a</i> path		<i>b</i> path		95% CIs	
	$\beta$	SE	$\beta$	SE	Lower	Upper
Mediator: Personal inside sacrifice						
Hypothesis 1						
Individual consideration	.15*	.06	.24**	.05	.01	.07
Group level variability	.06	.04	.31**	.09		
Individual level variability	.92**	.07	.65**	.05		
Hypothesis 2						
Fostering acceptance of group goals	.20**	.06	.24**	.05	.02	.09
Group level variability	.06	.04	.31**	.09		
Individual level variability	.91**	.07	.65**	.05		
Hypothesis 3						
High performance expectations	.22**	.07	.24**	.05	.02	.10
Group level variability	.06	.04	.31**	.09		
Individual level variability	.91**	.07	.65**	.05		
Hypothesis 4						
Appropriate role model	.19**	.06	.24**	.05	.01	.08
Group level variability	.06	.04	.31**	.09		
Individual level variability	.91**	.07	.65**	.05		
Hypothesis 5						
Inspirational motivation	.11	.06	.24**	.05	-.00	.06
Group level variability	.06	.04	.31**	.09		
Individual level variability	.93**	.07	.65**	.05		
Mediator: Teammate inside sacrifice						
Hypothesis 1						
Individual consideration	.22**	.05	.48**	.04	.06	.16
Group level variability	.17**	.06	.34**	.09		
Individual level variability	.79**	.06	.51**	.04		
Hypothesis 2						
Fostering acceptance of group goals	.24**	.05	.48**	.04	.07	.17
Group level variability	.18**	.06	.34**	.09		
Individual level variability	.79**	.06	.51**	.04		
Hypothesis 3						
High performance expectations	.22**	.06	.48**	.04	.04	.16
Group level variability	.17**	.06	.34**	.09		
Individual level variability	.81**	.06	.51**	.04		
Hypothesis 4						
Appropriate role model	.21**	.06	.48**	.04	.04	.16
Group level variability	.18**	.06	.34**	.09		
Individual level variability	.80**	.06	.51**	.04		
Hypothesis 5						
Inspirational motivation	.16**	.06	.48**	.04	.02	.14
Group level variability	.17**	.06	.34**	.09		
Individual level variability	.81**	.06	.51**	.04		

*Note.* *a* path denotes independent variable and mediator variable. *b* path denotes mediator variable and dependent variable. Task cohesion was the dependent variable in all hypotheses. Confidence intervals were generated using the Monte Carlo Method for Assessing Mediation.

\* $p < .05$ , \*\* $p < .01$ .

Table 3

*Multilevel mediation analyses for males and females separately*

	<i>a</i> path		<i>b</i> path		95% CIs	
	$\beta$	<i>SE</i>	$\beta$	<i>SE</i>	Lower	Upper
Mediator: Personal inside sacrifice						
Hypothesis 1						
Individual consideration						
Males	.21**	.08	.26**	.07	.01	.11
Females	.12	.08	.22**	.06	-.01	.07
Hypothesis 2						
Fostering acceptance of group goals						
Males	.18*	.09	.26**	.07	.00	.11
Females	.20*	.08	.22**	.06	.01	.09
Hypothesis 3						
High performance expectations						
Males	.27**	.10	.26**	.07	.02	.14
Females	.17	.09	.22**	.06	-.00	.09
Hypothesis 4						
Appropriate role model						
Males	.27**	.09	.26**	.07	.02	.14
Females	.12	.09	.22**	.06	-.01	.07
Hypothesis 5						
Inspirational motivation						
Males	.15	.08	.26**	.07	-.00	.09
Females	.07	.08	.22**	.06	-.02	.06
Mediator: Teammate inside sacrifice						
Hypothesis 1						
Individual consideration						
Males	.22**	.08	.45**	.07	.03	.18
Females	.23**	.08	.51**	.06	.04	.21
Hypothesis 2						
Fostering acceptance of group goals						
Males	.13	.09	.45**	.07	-.02	.15
Females	.37**	.07	.51**	.06	.11	.27
Hypothesis 3						
High performance expectations						
Males	.20*	.10	.45**	.07	.00	.19
Females	.25**	.09	.51**	.06	.04	.23
Hypothesis 4						
Appropriate role model						
Males	.17	.09	.45**	.07	-.00	.17
Females	.27**	.08	.51**	.06	.06	.23
Hypothesis 5						
Inspirational motivation						
Males	.10	.08	.45**	.07	-.02	.12
Females	.24**	.08	.51**	.06	.04	.21

*Note.* *a* path denotes independent variable and mediator variable. *b* path denotes mediator variable and dependent variable. Task cohesion was the dependent variable in all hypotheses. Confidence intervals were generated using the Monte Carlo Method for Assessing Mediation.

\* $p < .05$ , \*\* $p < .01$

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<sup>1</sup> It is important to note that these behaviors are conceptual additions from the MLQ-5X (Bass & Avolio, 2005), and as such contain a total of 3 items from the MLQ-5X, and 3 items that have been modified from the original MLQ-5X items. All six items were reproduced by special permission of the publisher, MIND GARDEN Inc., [www.mindgarden.com](http://www.mindgarden.com), from the “Multifactor Leadership Questionnaire for Research” by Bernard M. Bass and Bruce J. Avolio. Copyright 1995 by Bernard M. Bass and Bruce J. Avolio. All rights reserved. Further reproduction is prohibited without the Publisher’s written consent.